

COMMANDOMATIC

Owners Manual

W7, S14, WPS4, WPS9, MB6,
FS40, CF6 & CU40 Series

**Whole of House
Filters, Softeners
and Purifiers**



WARNING

This equipment must be installed and serviced by a qualified technician. Improper installation can create electrical hazards which could result in property damage, serious injury or death. Improper installation will void the warranty.



Notice to Installer

This manual contains important information about the installation, operation and safe use of this product. Once the product has been installed **this manual must be given to the owner/ operator of this equipment.**

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INTRODUCTION

This booklet is designed to cover the total range of Waterco Commandomatic domestic water softeners, purifiers and filters.

GENERAL INFORMATION

Commandomatic domestic units may be divided broadly into two types:-

1. Water Filters

- a) Sediment Filters are used to remove suspended material from the water. Sediment, mud and algae are filtered out down to the size of approximately 10 microns by a filter bed of anthracite, sand and gravel.
- b) Carbon Filters contain a deep bed of activated carbon as the filter media. Carbon is a highly adsorbent material with a very high capacity for the removal of tastes/ odours, chlorine and Trihalomethanes.

2. Water Softeners and Purifier

- a) Water Softeners remove hardness (Calcium and Magnesium) from water. The hardness minerals are trapped by the ion exchange resin bed.
- b) Purifier Softeners are a combination unit. They have both softening and purifying resins in their resin beds. This unit is well suited to use on water that is moderately hard and has an organic content.

COMMANDOMATIC HOME SOLUTIONS

Refer to the chart below to find the unit that best suits the problem.

RECOMMENDED UNIT		SOFTENER		PURIFIER/ SOFTENER		SEDIMENT FILTER		CARBON FILTER	
Number of persons in Household*		1-6	7-9	1-6	7-9	1-6	7-9	1-6	7-9
Commandomatic Model		W7(A)	S14(A)	WPS4(A)	WPS9(A)	MB6(A)	FS40(A)	CF6(A)	CU40(A)
TYPICAL SYMPTOMS	PROBLEM								
Hard Water									
Soap will not lather	Hardness	♦♦♦ ¹	♦♦♦ ¹	♦♦♦ ¹	♦♦♦ ¹				
White scale build up	Hardness	♦♦♦ ¹	♦♦♦ ¹	♦♦♦ ¹	♦♦♦ ¹				
Glass ware streaked	Hardness	♦♦♦ ¹	♦♦♦ ¹	♦♦♦ ¹	♦♦♦ ¹				
Dirty Water									
Dirt/ rust settling out	Sediment					♦♦♦	♦♦♦	♦	♦
Sludge/ clay settling	Mud					♦♦♦	♦♦♦		
Green organic matter	Algae					♦♦♦	♦♦♦		
Suspended matter	Colloidal clay	Clarification on Application							
Orange/ Brown	Iron	♦ ²	♦ ²	♦ ²	♦ ²	♦	♦		
Green stains on fittings	Copper	♦♦♦	♦♦♦	♦♦♦	♦♦♦				
Discoloured water	Organic colour			♦♦	♦♦			♦	♦
Taste and Odour									
Smell of chlorine	Chlorine			♦ ³	♦ ³			♦♦♦	♦♦♦
Rotten vegetable smells	Odour			♦	♦			♦♦♦	♦♦♦
Rotten egg smell	Hydrogen Sulphide							♦	♦
Salty to taste	Salty/ Brackish	Reverse Osmosis on Application							
Other									
Not readily detectable	Fluoride			♦	♦				
Requires analysis	Nitrate			♦	♦				

♦♦♦ Excellent Performance

♦♦ Good Performance

♦ Fair Performance

* Washing machines, dishwashing machines, spa baths - each count as one person.

1. Based on 143mg/L hardness for softeners, Purifiers/ Softeners.

2. Water softener satisfactory to 0.3mg/L.

3. Water Purifier/ Softener satisfactory to 0.1ppm.

This chart has been prepared as a guide based on municipal water supplies. These products are not designed for the removal of microorganisms and some may result in the accumulation of them in certain circumstances. Therefore, for drinking water, it is important that they are used on microbiologically safe water and that flushing and maintenance protocols are strictly adhered to.

COMMANDOMATIC SEDIMENT FILTER

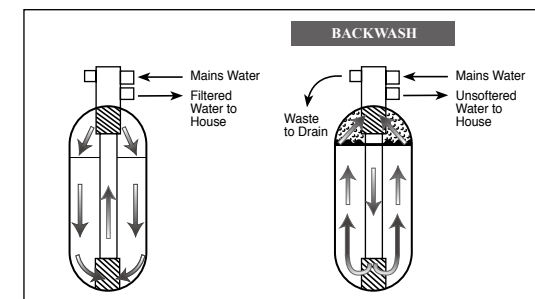
Each unit comprises of:

- **Pressure vessel** containing a mixed bed of either:
 - a) Anthracite, Sand and Gravel.
 - b) Activated Carbon.

- **A10 valve**, which directs the flow of water through the cycle of backwash and service.

How does a Commandomatic Sediment/ Carbon Filter work?

The filter media is held within a cylinder. The filter media sits on top of a gravel bed and a centre tube passes through the media. Normal service flow is down through the filter bed and back up the centre tube. During backwashing, the flow is reversed flushing sediment out of the filter bed.



COMMANDOMATIC WATER SOFTENER/ PURIFIER SYSTEMS

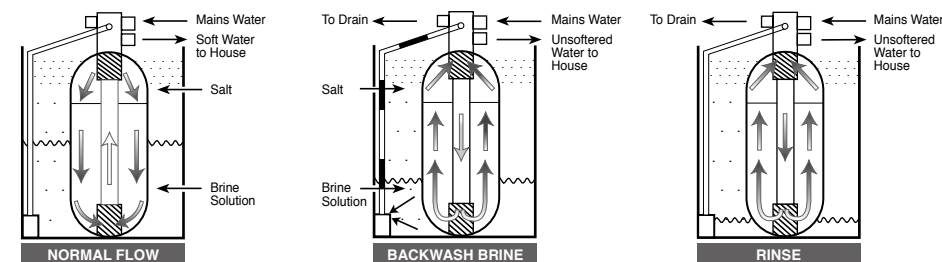
Each unit comprises of:

- **Pressure vessel** containing a bed of cation or cation/ anion exchange resin, which does the softening/ purifying.
- **Brine tank** to store and provides the salt, to make up the salt brine solution needed for regeneration.
- **A 10 valve**, which directs the flow of water through the cycle of regeneration and service.

How does a Commandomatic water Softener/ Purifier work?

The water softening/ purifying resin is held within the pressure vessel. The resin sits on top of a gravel bed and a centre tube passes through the resin to provide up or down flow when required. Normal flow is down through the resin bed and back up the centre tube. During salt regeneration, the flow is reversed.

Salt is stored in the brine tank. A float allows a set amount of water into the brine tank. This water dissolves enough salt to regenerate the water softener/ purifier. The brine solution is then transferred into the resin cylinder. This is achieved by means of an injection system, which draws the brine solution up, and passes it through the resin bed and out to the drain.

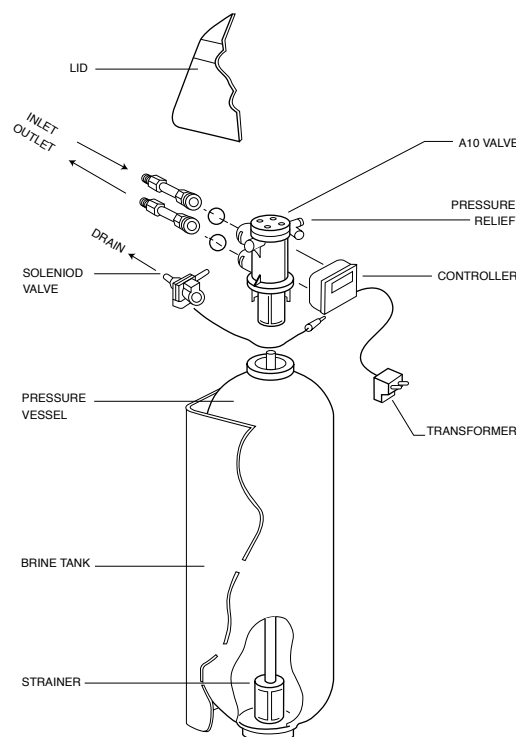


INSTALLATION INSTRUCTIONS

These instructions apply to both Filters and Softeners.

CHECKLIST

- ✓ The unit should be installed:
 - a) ON a firm level, i.e. a cement path or pre-cast slab.
 - b) Within three metres of a gully trap or sink. If the distance is greater, the drain pipe size must be increased to 20mm.
 - c) Do not supply treated water to the garden taps.
- ✓ Pressure requirements – Maximum 825 kPa (120 psi) Minimum 275 kPa (40 psi).
 - a) If the available pressure is lower than 275 kPa the water softener's A10 valve will not be able to function properly.
 - b) If the pressure is above 825 kPa (120psi), fit a pressure limiting valve. A pressure limiting valve is also recommended if your area is subject to high pressure fluctuations and/ or it is a requirement of your local Water Authority.
- ✓ If a Softener, Softener/ Purifier or Carbon unit is to be installed in an area where there is sediment, it is advisable to install a sediment filter to keep the media bed clean and prevent the jamming of the solenoid valves on the automatic units.
- ✓ Check the size of the house. Larger houses generally have 2 or 3 showers/ bathrooms, automatic dishwashers and washing machines and have 20mm (3/ 4") or 25mm (1") pipe supply. This is to ensure adequate flow rate if two or more units are in operation at any one time. Unit selection must therefore be based on flow rates and capacity, to prevent pressure/ flow loss.



CONNECTIONS

Each unit has 3 connections; drain inlet and outlet. These will be 15mm or 25mm, depending on the model selected.

- 1) Fit an isolation valve to the inlet supply. This can be in the form of an approved gate valve or ball valve.
- 2) Connect inlet (top) & outlet (bottom).
- 3) Connect drain line to either the timer (semi-auto) or to the solenoid (fully auto), using 15mm flexible hose and run to drain. Leave a 75mm gap between end of drain line and the drain for observation of flow.
- 4) If the drain is more than 3 metres from the unit, the drain hose size must be increased to 20mm.
- 5) Connect overflow hose (supplied). Do not interconnect overflow line with drain line, run as a separate and also leave a 25mm gap. NB Filters do not have an overflow.
- 6) All softeners have a cabinet overflow, which should be connected to the drain with a flexible hose.
- 7) If the unit is a softener, load one or two 25kg bags of Commandomatic Water Softener Salt into the Brine Tank to ensure the tanks is about two thirds full.

INITIAL OPERATION

If a Commandomatic Automatic Controller is fitted to the unit, please program the Controller before initial operation of the unit, refer to "Programming the Controller" .

- a) For Filters : Turn on the inlet valve. Start the Filter in the backwash cycle. When the vessel has filled, there will be a continuous water flow to the drain. Allow the unit to backwash for 15 minutes, the unit will then return to normal operation.
- b) For Softeners : Turn on the inlet valve. Start the Softener in the regeneration cycle. When the vessel has filled, there will be a continuous water flow to the drain. As soon as this happens, regeneration may be terminated, which will return your softener to normal operation. Then salt may be loaded. Your softener has been factory regenerated and is ready for immediate use.

NOTE : In multiple installations, filters are always installed upstream of softeners.

⚠ CAUTION

The transformers used on automatic units are not suitable for external installation and should be installed inside or protected by a weatherproof shroud.

WHEN AND HOW TO REGENERATE OR BACKWASH

Please note that regeneration refers to softeners/ purifiers and backwashing refers to filters.

SOFTENER AND SOFTENER/ PURIFIER REGENERATION

It is advisable to regenerate your water softener/ purifier on a regular basis. The frequency of regeneration will vary according to the amount of water being used and its hardness. Find out the approximate hardness of the water supply in question, this can usually be obtained from the local Water Authority.

A calculation can be made to estimate usage, to enable a regeneration schedule to be prepared. Each person will use approximately 125 litres of water per day. An automatic washing machine and/or dishwasher each counts as an additional user.

Therefore, a family of five with a dishwasher and washing machine will use approximately 7 X 125 litres of water per day – total 875 litres. 875 litres per day X 7 days = 6,125 litres per week.

The following chart details the capacity of each unit. To find the frequency of regeneration, divide the capacity of the unit by the calculated daily usage rate.

UNIT CAPACITY CHART FOR COMMANDOMATIC MODELS

HARDNESS	CAPACITY W7	CAPACITY WPS4	CAPACITY S14	CAPACITY PS9
Mg/ L Unit	(Litres)	(Litres)	(Litres)	(Litres)
10	97500	65000	195000	130000
25	39000	26000	78000	52000
50	19500	13000	39000	26000
75	13000	8667	26000	17334
100	9750	6500	19500	13000
125	7800	5200	15600	10400
140	6964	4642	13928	9284
150	6500	4334	13000	8668
175	5571	3714	11142	7428
200	4875	3250	9750	6500
225	4333	2889	8666	5778
250	3900	2600	7800	5200
275	3545	2364	7090	4728
300	3250	2167	6500	4334
325	3000	2000	6000	4000
350	2786	1857	5572	3714
375	2600	1733	5200	3466
400	2438	1623	4876	3246
425	2294	1529	4588	3058
450	2167	1444	4334	2888
475	2052	1368	4101	2736
500	1950	1300	3900	2600

From the chart above, it can be seen if a W7 is used, the unit requires regeneration every 8 days if the water hardness is 140 mg/ L. (i.e. $6964 \div 875 \text{ litres/ day} = 8 \text{ days}$) If the larger S14 softener is used, the unit only requires regeneration every 16 days. (i.e. $13928 \div 875 \text{ litres/ day} = 16 \text{ days}$).

The chosen unit should offer the most convenient regeneration period to suit the user whether it be Semi-Automatic or Fully Automatic.

SEMI-AUTOMATIC REGENERATION

Normal regeneration time is 60 minutes; However, it may need to be extended up to 90 minutes in areas where the water pressure is low.

For Semi-Automatic Regeneration simply turn the dial on the Commandomatic timer, the unit will automatically return to normal operation after the regeneration is completed.



Salt

Be sure to use Commandomatic salt (approximately 1/4" pellets), as it is specially selected large granule salt, graded for maximum efficiency and packed in 25kg moisture proof bags. This will prevent "bridging", as would occur if fine salt were used. Your brine tank holds 50kg – or 2 bags of salt. When salt level drops to approx. half the depth of the brine tank, add another bag of salt.

Salt Usage

COMMANDOMATIC UNIT	SALT USAGE PER REGENERATION (kg)
W7(A)	4.5
S14(A)	7
WPS4(A)	4.5
WPS9(A)	7

FILTER BACKWASH

Back wash time is approximately 15 – 20 minutes. Frequency is dependent on the amount of sediment in the water. As a rough guide:

- Bad water, backwash should be carried out every second day
- Average water, backwash should be carried out once a week.

Semi-Automatic Backwash

To backwash sediment and carbon filters simply turn the timer the dial on the Commandomatic timer to the 15 minute mark, the unit will automatically return to normal operation after the backwash is completed.

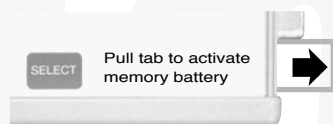
Fully-Automatic Backwash – refer to **Commandomatic Automatic Controller** (Page: 9).

- ✓ Check the wastewater at drains to ensure that backwash is complete i.e. the backwash water is clean after 15 minutes.
- ✓ Backwash water from filters can be run into gardens. If drain line is longer than three metres use a 20mm diameter hose.
- ✓ Mixed media and carbon filters must be regularly backwashed and rinsed to help prevent contamination from bacteria growths. Maintenance is customer's responsibility.

NOTE:

- All units have automatic by-pass, which enables water to be used inside the house during regeneration.
- If the pressure is low the unit may take longer than the recommended backwash time.
- The salt used for regeneration passes through the resin bed and out to the drain. It is not strong enough to harm a septic tank and will not affect the bacterial action, which takes place.
- These units are not designed for the removal of micro organisms and may result in the accumulation of micro organisms. It is therefore important that filters are used on microbiologically safe water and that flushing and maintenance protocols are strictly adhered to.

CONTROLLER DISPLAYS



Volumatic Display

The capacity bar graph display has been implemented to indicate the remaining capacity as a percentage of the bar, excluding the reserve capacity.

When the remaining capacity reaches the reserve capacity, the capacity bar graph will be blank before indicating the reserve capacity. As the reserve capacity is depleted, the display will alternate between the capacity bar graph and the text "RESERVE". Once the reserve water is being used, the unit will go into regeneration at the set regeneration time.

The reserve is automatically calculated by the unit to cope with demand. Its value specifies how much more water the unit can soften before regeneration. The reserve value shown increases until it reaches the reserve limit, at which point the word "RESERVE" will be replaced with "OVERRUN".

Calendar Timer Display

As the Calendar Timer is based purely on a set time and date, the capacity bar graph displaying capacity remains unchanged.

Regeneration/ Backwash Display

During regeneration the capacity bar graph will indicate the percentage of time to completion and will alternate the display between the capacity bar graph and the text "REGENERATING".

Low Salt Warning (Softeners & Softeners / Purifiers only)

The "Low Salt" warning keeps track of the number of regeneration's that have been performed before indicating "LOW SALT" on the main display. When a low salt condition occurs the main display will toggle between the capacity bar graph and the text "LOW SALT". The salt should be replaced and then press the SELECT key to reset the low salt warning.

Sand and carbon filters do not require the "Low Salt Warning", therefore the "Low Salt Warning", must be set to "0" to de-activate the low salt indicator.

Power Loss

If power is lost to the unit for over seven days, the user settings and time settings are lost. A "POWER LOSS" message will be shown on power resuming. The unit has battery-backed memory for all service and user parameters. In the event of a power failure, the time clock in the unit will keep the correct time and all settings will be retained for up to seven days.

If at the time of the power failure the unit had been regenerating the resin bed, the unit will begin that cycle from the start as soon as power is resumed to the unit.

NOTE: Even if there is one minute left in the cycle it will always start from the beginning on the resuming power.

ADDITIONAL DISPLAYS AND SERVICE MENUS

Access Code

Pressing the SELECT key accesses this menu, while the Main display is showing. A 4-digit access code is entered to set the access level required for setting various values indicated above.

NOTE: The display will always return to the main display if there is no keyboard activity for 15 seconds.

Remaining Cap (display only)

This displays the true remaining capacity including the reserve capacity in milligrams.

Current Usage (display only)

This displays the current daily use since the previous day's regeneration/ backwash time in milligrams.

Previous Usage (display only)

This displays the previous day's usage up to the last regeneration/ backwash time in milligrams.

Average Usage (can be set with access code 8624)

This displays the current average in milligrams, which can be adjusted.

Set Time (can be set without access code)

Allows adjustment of the clock time. Note that adjustment of the minutes will reset the seconds to zero.

Calendar Override (can be set with access code 1357)

Displays and sets the calendar override function. A value of zero disables this function.

Remaining Regens (display only)

This displays the number of regeneration cycles left before indicating the warning for "LOW SALT". Once the low salt warning appears, further regeneration is halted until the salt is replenished and the low salt warning is reset.

Set Regen Time (can be set without access code)

Displays and sets the time when automatic regeneration/ backwash should normally occur.

Set Reg. Period (can be set without access code)

Displays and sets the duration of the regeneration/ backwash cycle in minutes.

Set Capacity (can be set with access code 8624)

Displays and sets the capacity of unit. 50 000mg (default)

Set Hardness (can be set with access code 1357)

Displays and sets the hardness of the water in milligrams per litre.

Set Salt Warning (can be set with access code 1357)

Displays and sets the number of regeneration cycles, which can occur before requiring a refill of salt in the brine tank. Set salt warning to "0" for Sediment and Carbon Filters to de-activate the low salt warning.

Set Pulses/ Litre (can be set with access code 8624)

Displays and sets the calibration for counting flow pulses from the flow sensor.

Flow in 1 min (display only)

Displays the accumulated number of litres flowing in a one minute period. Pressing the SELECT key can restart the one minute period.

REPLACING THE A10 VALVE AND CLEANING THE FILTER BED

1. Turn off the mains water inlet tap and open the drain tap to relieve the pressure.
2. Remove the two stainless steel clips and disconnect the drain line.
3. Turn the complete valve anti-clockwise for several turns until it can be lifted clear of the cylinder. The centre tube assembly may come away with the valve. If so, place a hose back into the bed so that whilst water from the hose is swirling the bed material, the centre tube can be pushed back down through the bed until the top of the tube is level or below the top of the cylinder.
4. Re-assemble the unit, using a new "o" ring seal with the new valve. Place grease on the valve thread and start the valve lightly, being careful not to cross the threads. Tighten the valve by hand –DO NOT USE EXCESSIVE FORCE.
5. If a washout is required – lay the unit on a table or support and hose the contents out of the cylinder into a large bucket or container. Separate the gravel if possible.
6. Wash the sand/ carbon until it is free of mud and dirt.
7. Place the unit in an upright position and replace the centre tube and screen assembly ensuring there is no gravel left in the bottom of the cylinder. Place a temporary plug in the top of the centre tube then using a large funnel;replace the cleaned gravel followed by the sand/ carbon. Remove the temporary plug. Refill with water and re-assemble with the valve as above.
8. Re-connect unit and backwash until clean.

TROUBLESHOOTING GUIDE

PROBLEM	PROBABLE CAUSE	REMEDY
Unit not softening	No salt in brine tank	Refill with Commandomatic salt and allow 2 hours for the salt to dissolve and then regenerate manually.
	Electrical failure	a) Check the power is turned on. b) Check for blown fuse (household power). c) Lead may have been removed from power point. d) Solenoid coil may be faulty, check and replace, if necessary. †
	Salt bridging in brine tank above wNot drawing brinelevel	Take probe (i.e. broom handle or similar) and break salt bridge carefully.
	Not drawing brine	a) Check brine valve and clean, if necessary. † b) Pressure is low – minimum recommended pressure is 275kPa. c) Injector is clogged. Remove and clean. †
	Water Hardness has increased	Check water hardness
Dripping from Pressure Relief	High Pressure	Install a 600kPa pressure limiting valve. Relief valve may need replacement. †
Dirty water	Dirt build up	Unit requires a pre-filter. In poor quality water areas there will be some dirt-build up in the resin bed even after a filter is installed.
Salt taste	Low water pressure	Increase regeneration time.
	Excess brine	Check brine level in tank. Clean Brine valve.
	Blocked injector	Remove and clean. †
Unit Overflowing	Dirt in brine valve assembly	Remove check and clean brine valve. †
Unit continues running to drain after regeneration	Dirt in solenoid or timer	Remove diaphragm and clean. †
Not drawing brine	Blockage in brine valve	Remove and clean. †
	Seals in main valve need replacement	Replace seals. †
	Blocked injector	Remove and clean. †

† Should be performed by a qualified service technician to avoid personal injury or property damage.

WARNING : ENSURE WATER AND POWER IS TURNED OFF PRIOR TO SERVICING.

* If loading salt into brine tank, water displacement will increase water level height – this is normal

COMMANDOMATIC MEDIA CAPACITIES

CODE	3532005	3532006	3534010	3535444	3530015	3530012	3530013	3533009
Product	Soft/ Resin	Purify/ Resin	Anthracite	1/2 x 1/4 gravel	6/8 Gravel	8/16 Sand	30/60 Sand	Act-Carbon
W7	17 Litres				4 Litres	or 4 Litres		
W7A	17 Litres				4 Litres	or 4 Litres		
S14	34 Litres				6 Litres	or 6 Litres		
S14A	34 Litres				6 Litres	or 6 Litres		
WPS4	11 Litres	6 Litres			4 Litres	or 4 Litres		
WPS4A	11 Litres	6 Litres			4 Litres	or 4 Litres		
PS9	22 Litres	12 Litres			6 Litres	or 6 Litres		
PS9A	22 Litres	12 Litres			6 Litres	or 6 Litres		
MB6			4 Litres		4 Litres		4 Litres	
MB6A			4 Litres		4 Litres		4 Litres	
FS40			6 Litres	5 Litres		3 Litres	8 Litres	
FS40A			6 Litres	5 Litres		3 Litres	8 Litres	
CF6						4 Litres		14 Litres
CF6A						4 Litres		14 Litres
CU40						6 Litres		28 Litres
CU40A						6 Litres		28 Litres

Please Note : 8/16 Sand may be used as a substitute for 6/8 Gravel, if 6/8 Gravel is not available.

SERVICE AND MAINTENANCE INFORMATION

- The salt storage compartment of your softener should be maintained at a level between one third and two thirds full. Use Commandomatic Salt as it is a Large Granule salt, graded for best efficiency and it is packed in 25kg moisture proof bags.
- During regeneration, untreated water is by-passed to service, so water is available to the house.
- Waste water from regeneration may be run into a septic tank system.
- Solenoid Valve
 - Power and water must be turned off before removing.
 - When ordering spare parts specify 240 Volt or 24 Volt.
- Manual Timer
 - To clean manual timers, turn off the water supply to the unit.
 - If necessary, clean out the valve: Unscrew the cover, remove the lock cone, spring and membrane and rinse thoroughly under flowing water. Replace the parts in the reverse sequence, taking care that they are fitted correctly.

COMMANDOMATIC WARRANTY

Waterco Limited (hereinafter called “ The Company ”) guarantees this Commandomatic appliance for one year subject to “ Conditions ” set out hereunder, to be free from defects in material and workmanship under normal use and service. The obligation of the Company shall be limited to replacing or repairing (at the option of the Company) any part of the said appliance which proves thus defective within one year from the date of the original purchase and which the Company's examination shall disclose to its satisfaction to be thus defective.

Conditions

This warranty does not cover faults arising from the following causes:

- Appliances not installed in accordance with the Company's installation instructions.
- Accident, alteration, negligence, abuse, misuse, flood, fire and Acts of God.
- If repairs are conducted by any person or persons not approved by the Company.
- Operation at water pressure outside the range shown on the appliance or operation of the unit with excessive water hammer caused by other appliances.

The Company does not accept responsibility for any costs or charges, involved in transporting the appliance to or from the Company's premises, or those of its accredited agent, for the purpose of repair, replacement or adjustment.

This warranty is the sole warranty given by the Company, and the Company neither assumes nor authorizes any person to assume for it, any other obligation or liability in connection with this Commandomatic appliance, or part thereof.

IMPORTANT – This warranty must be completed and **RETAINED** by the owner. Keep this certificate together with your purchase docket in a safe place – you will have to produce them should you require service under the terms of this warranty.

Tested by _____ Purchase Date _____

Model No. _____ Serial No. _____

Owner's Name _____

Address _____

Installer's Name _____

Builder, Plumber _____

Address _____